REMARKS

The present application has been reviewed in light of the Office Action dated April 3, 2009. Claims 1, 7-10, and 24 are presented for examination, of which Claims 1 and 9 are in independent form. Claims 12-23 have been withdrawn from consideration. Claims 1, 9, and 24 have been amended to define Applicant's invention more clearly. Favorable reconsideration is requested.

Claims 1, 7, 8, and 10 were rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of the invention. Claims 1, 7-10, and 24 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claims "1, 7-10 and 9" were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Claims 1 and 9 were objected to for the reasons set forth on page 6 of the Office Action.

Without conceding the propriety of these rejections and objections, it is noted that the claim recitation "sub-bitplanes" (referred to on page 4 of the Office Action) is supported at least by the third embodiment described in the specification, and that Claims 1 and 9 have been amended in a manner deemed suitable for obviating the remaining rejection and objection. As an example, variable "Q" has been removed from Claims 1 and 9, and the amendments to those claims makes it more clear that a value of index "i" is decided in accordance with an accumulated time difference TT, and then the number N(s, i) for each subband "s" uniquely defined by the decided value of the index "i", is selected from a table.

Accordingly, for all these reasons, withdrawal of the mentioned rejections and objection is respectfully requested.

Claims 1, 2, 4, and 6-10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Application No. 2001-112004 (Eiji et al.) in view of U.S. Patent Application Publication No. 2006/0098742 (Meenakshisundaram et al., hereinafter referred to as "Meen"), in view of U.S. Patent Application Publication No. 2004/0001635 (Van Der Schaar et al.), in view of U.S. Patent Application Publication No. 2003/0081847 (Sato et al.), and further in view of U.S. Patent no. 6,751,356 (Oki et al.).

As amended, Claim 1 recites:

> 1. (currently amended): A moving image decoding method of decoding encoded moving image data, which is generated by decomposing each frame of moving image data into a plurality of subbands, and encoding a plurality of coefficients for each subband from upper to lower bits for respective bitplanes or sub-bitplanes for a predetermined unit, using a computer to perform the steps of:
>
> a calculation step of, for every decoding of a video frame, calculating a time difference ΔT between a decoding process time DT taken in a decoding process of the video frame and a target decoding time T for the decoding process and adding the calculated time difference ΔT to to an accumulated time difference TT to update the accumulated time difference TT;
>
> a non-decoding bitplane determination step of determining bitplanes or sub-bitplanes that are not to be decoded based on the updated accumulated time difference TT;
>
> a bitplane decoding step of reclaiming the plurality of coefficients of the plurality of subbands from encoded data of bitplanes or sub-bitplanes other than the bitplanes or sub-bitplanes determined in the non-decoding bitplane determination step; and
>
> a subband composition step of generating frame data by compositing the coefficients of the plurality of subbands reclaimed in the bitplane decoding step,
>
> wherein the non-decoding bit-plane determination step includes steps of:

managing a table which stores the number N(s, i) of lower bit-planes or lower sub-bitplanes that are not to be decoded for each subband s and each index i, wherein $N(s, i+1) \geq N(s, i)$,

deciding a value of the index i in accordance with the updated accumulated time difference TT;

selecting the number N(s, i) for each subband s uniquely defined by the decided value of the index i from the table, and

setting lower bitplanes or lower sub-bitplanes for each subband s, the number of which is the selected N(s, i), as the bitplanes or sub-bitplanes that are not to be decoded.

An example aspect relating to Claim 1 is a technique for determining bitplanes or sub bitplanes that are not to be decoded, upon decoding subbands.

More specifically, for example, for every decoding of a video frame, a time difference ΔT between a decoding process time DT taken in a decoding process of the video frame and a target decoding time T for the decoding process is calculated, and the calculated time difference ΔT is added to an accumulated time difference TT to update the accumulated time difference TT. Thus, the accumulated time difference TT can indicate the sum of the ΔT for each video frame that has been completed to decode.

And then, bitplanes or sub bitplanes not to be decoded are determined based on the updated accumulated time difference TT. In order to determine bitplanes or sub bitplanes not to be decoded, the moving image decoding method manages a table which stores the number N(s, i) of lower bit-planes or lower sub-bitplanes that are not to be decoded for each subband s and each index i (where $N(s, i+1) \geq N(s, i)$). One example of the table is shown in Fig. 8. Thus, the table manages the number of lower bit-planes or lower sub-bitplanes not to be decoded for each subband. Furthermore, the number of lower

bit-planes or lower sub-bitplanes not to be decoded can be changed by changing the value of the index i.

Also, according to the method, a value of the index i is decided in accordance with the updated accumulated time difference TT, and the number N(s, i) for each subband s uniquely defined by the decided value of the index i is selected from the table. That is, according to the updated accumulated time difference TT, the number of lower bit-planes or lower sub-bitplanes not to be decoded can be decided for each subband.

The Office Action alleges that Eiji teaches the non-decoding bitplane determination step of Claim 1, and cites paragraphs [0023] , [0033], and [0042] as support. A machine translation of those paragraphs of Eiji states as follows, respectively:

> [0023] A video decoding method of this invention is characterized by comprising:
>
> A step which extracts coding data of each image frame from encoded bit streams.
>
> A step which separates entropy-code-modulation data from coding data of each extracted image frame.
>
> A step which sets up decoding processing time of a request at the time of demanded decoding. In order to decode each image frame in decoding processing time of a set-up request, decoding processing time of the above-mentioned request in a step assigned to each coding batch and assigned decoding processing time. A step which carries out entropy decoding of the separated above-mentioned entropy-code-modulation data per bit plane for every coding batch, and calculates a quantized wavelet conversion factor, a step which performs inverse quantization processing to a wavelet conversion factor quantized [above-mentioned], a step which performs wavelet inverse transformation to a wavelet conversion factor by which inverse quantization was carried out [above-mentioned], and reproduces an image frame, and a step which arranges each reproduced image frame in order of a time series, generates video, and outputs dynamic image data.
>
> [0033] In order that the bit rate control section 106 may code each image frame, the bit rate, i.e., the target bit rate, of the request set up by the bit

> rate set part 105, by assigning the target bit rate to each coding batch, it is taken into consideration whether the coding data to the bit plane of which level of each coding batch is used for generation of encoded bit streams, after controlling the number of bit plane which gives entropy code modulation for every coding batch or finishing coding all the bit planes, processing which takes out required data volume sequentially from the thing corresponding to the top bit plane is performed.
>
> [0042] In drawing 3, 206 is an inverse quantization part which performs inverse quantization processing to the value of the quantized wavelet conversion factor which was obtained in the entropy decoding part 205, and 207, by the wavelet inverse transforming part which performs wavelet inverse transformation to each subband which comprises each coding batch which consists of a wavelet conversion factor by which inverse quantization processing was carried out, and reproduces an image frame. 208 is a video generation part which arranges the reproduced image frame in order of a time series, generates video, and outputs dynamic image data.

However, nothing in either paragraphs, or anywhere else in Eiji, would teach or suggest determining bitplanes or sub bitplanes that are not to be decoded, according to accumulated time obtained by accumulating a difference between an actual decoding process time and a target decoding time for each video frame, in the manner of Claim 1.

The Office Action concedes that "Eiji is silent in regards to a calculation step of, for each frame, calculating a time difference ...between a decoding process time DT required to perform a decoding process and a target decoding time T for the decoding process", as recited in Claim 1, but then cites Meen as teaching those features in paragraph [0038]. However, that paragraph states merely as follows:

> [0038] The fourth measure of AVsync is the difference (_dtv) between a recovered video DTS and an actual video decoding time (LTSVD), which may be expressed as _dtv=DTS-LTSvD.

Nothing in that paragraph, or anywhere else in Meen, is seen to teach or

suggest determining bitplanes or sub bitplanes that are not to be decoded, according to *accumulated time obtained by accumulating a difference between an actual decoding process time and a target decoding time for each video frame,* in the manner of Claim 1.

Van Der Schaar is cited in the Office Action as teaching selecting a candidate, as formerly recited in Claim 1, Sato is cited in the Office Action a teaching managing a table as set forth in Claim 1, and Oki is cited in the Office Action as teaching that "each candidate is associated with an index ..., wherein, for each subband, increasing values of the plurality of candidates are arranged in an increasing order or values of associated indices." However, none of those references is understood to remedy the above-noted deficiencies of Eiji and Meen, as references against Claim 1 herein. Accordingly, Claim 1 is clearly patentable over those references, whether considered separately or in combination.

Claim 9 recites features similar in many relevant respects to those of Claim 1 discussed above, and also is believed to be clearly patentable over the foregoing references, whether considered separately or in combination, for the same reasons as is Claim 1.

The other rejected claims in this application depend from one or another of the independent claims discussed above and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual consideration of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

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